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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/960,285	09/24/2001	Akira Tsuboyama	684.3255	4759

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EXAMINER

YAMNITZKY, MARIE ROSE

ART UNIT	PAPER NUMBER
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1774

DATE MAILED: 06/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/960,285

Applicant(s)

TSUBOYAMA ET AL.

Examiner

Marie R. Yamnitzky

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 35-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 35-38 and 40-43 is/are rejected.
- 7) ☒ Claim(s) 39 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submissions filed on March 09, 2004 and April 09, 2004 have been entered.

Claims 35-43 are pending.

2. All rejections set forth in the Office action mailed December 09, 2003 are rendered moot by claim cancellation.

The previously applied published application of Igarashi et al. (US 2001/0019782 A1) is withdrawn as prior art. Present claims 35-40 and 43 are explicitly supported by applicant's foreign priority application JP 292490/2000 (09/26/2000), which was filed prior to the U.S. filing date of Igarashi's application. The properties recited in claims 41 and 42, while not explicitly disclosed in a priority application filed prior to the U.S. filing date of Igarashi's application, are inherent in some of the devices disclosed in priority application JP 292490/2000.

The previously applied published application of Grushin et al. (US 2002/0121638 A1) does not disclose or suggest the subject matter of present claims 35-43.

3. In the advisory action mailed March 29, 2004, the examiner noted that the formulae set forth on page 23 of the specification have specific substitution patterns, and indicated that further

consideration was required as to whether the formulae set forth in claim 35, with unlimited substitution patterns, are fully supported by the original disclosure.

Formulae (1)-(5) of present claim 35, with no limit on the position of any substituents on the ligands, are supported by the original disclosure because there is no limit on the position of any substituents on CyN and CyC of generic formula (1) as originally disclosed.

4. Claims 35, 36 and 41-43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As recited in claim 35, a ligand of a compound of formula (1) has at least one fluorinated alkyl substituent. Claim 35 also sets forth that the ligands of the compounds of formulae (1)-(5) may be substituted with an alkyl group in which at least one methylene group, or at least two non-neighboring methylene groups, can be replaced by -O-, -S-, -C(O)-, -C(O)-O-, -O-C(O)-, -CH=CH- or -C≡C-. Replacement of one or more methylene groups provides for substituents that are not, strictly speaking, alkyl groups (such as alkoxy groups). It is not clear if the at least one fluorinated alkyl substituent required for a compound of formula (1) is strictly limited to fluorinated "alkyl" having the conventional meaning of alkyl, or if the required substituent may be an alkyl group in which at least one methylene group or at least two non-neighboring methylene groups are replaced by -O-, -S-, -C(O)-, -C(O)-O-, -O-C(O)-, -CH=CH- or -C≡C-.

(Claims 37-40 are not included in this rejection because these claims limit the compound to a compound other than the compound of formula (1).)

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 35 and 40-43 are rejected under 35 U.S.C. 102(e) as being anticipated by Thompson et al. (US 2002/0034656 A1).

Thompson et al. disclose a compound of formula (5) for use in a luminescence device. In particular, see paragraphs [0023] and [0169]-[0171]. A compound represented by the second formula in paragraph [0170] on page 13 is a compound of present formula (5). (The relied upon disclosure is supported by Thompson's earlier application No. 09/311,126, filed May 13, 1999.)

The properties recited in claims 41 and 42 are inherent in a device according to Thompson et al. in which the emissive molecule in the light emitting layer is a compound of the second formula in paragraph [0170].

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 35, 37, 38 and 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson et al. (US 2002/0034656 A1).

Thompson et al. suggest compounds of formula (2) or formula (3) for use in a luminescence device. In particular, see paragraphs [0052], [0058]-[0059] and [0183], and Figures 27 and 31. (The relied upon disclosure is supported by Thompson's earlier application No. 09/452,346, filed December 01, 1999.)

Thompson et al. teach that thienylpyridine and benzothienylpyridine can be used as ligands for iridium compounds used as emitters in organic luminescence devices. Thompson et al. teach that the iridium compounds may have three identical ligands. Based on Thompson's disclosure, one of ordinary skill in the art at the time of the invention would have reasonably expected that L ligands disclosed as suitable for iridium compounds of formula L_2MX would also be suitable for iridium compounds of formula L_3M . The L ligand of the compound of formula L_2MX as depicted in Fig. 31 is the ligand required for a compound of present formula (3). The L ligand of the compound of formula L_2MX as depicted in Fig. 27 is a position isomer of the ligand required for a compound of present formula (2).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to make compounds of formula L_3M utilizing the L ligands taught by Thompson et al. in order to provide a variety of compounds suitable for use in an EL device as taught by the prior art. One of ordinary skill in the art at the time of the invention would have reasonably expected that iridium compounds of formula L_3M having the L ligands taught by Thompson et al. would be luminescent materials and would be suitable for use as a dopant in the luminescent

layer of an organic luminescence device. With respect to the thienylpyridine ligand required for a compound of present formula (2), thienylpyridine has more than one isomeric form and paragraph [0183] of Thompson's publication does not limit the isomeric form of thienylpyridine. The thienylpyridine ligands of the compound depicted in Thompson's Fig. 27 are 2-thienylpyridine ligands whereas the thienylpyridine ligands of a compound of present formula (2) are 3-thienylpyridine ligands. Compounds which are position isomers are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties.

The properties recited in claims 41 and 42 would inherently be met by a device according to Thompson et al. in which the emissive molecule in the light emitting layer is the suggested compound tris(thienylpyridine) iridium or tris(benzothienylpyridine) iridium.

9. Claim 39 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claim 36 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

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11. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (571) 272-1531. The examiner works a flexible schedule but can generally be reached at this number from 6:30 a.m. to 4:00 p.m. Monday, Tuesday, Thursday and Friday, and every other Wednesday from 6:30 a.m. to 3:00 p.m.

The current fax number for Art Unit 1774 is (703) 872-9306 for all official faxes.
(Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (571) 273-1531.)

MRY
June 14, 2004



**MARIE YAMNITZKY
PRIMARY EXAMINER**

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